CLAIMS

1. A biocompatible photonic crystal comprising a structure of a plurality of biocompatible materials.

2. The photonic crystal of claim 1, wherein at least one of said materials are digestible.

3. The photonic crystal of claim 1, wherein at least one of said materials are metabolizable.

4. The photonic crystal of claim 1, wherein said materials comprise different indices of refraction for a defined frequency range of operation.

5. The photonic crystal of claim 4, wherein said structure is repetitive in indices of refraction along one or more directions.

6. The photonic crystal of claim 1, wherein at least one of said materials comprise a degree of transparency at a defined frequency range of operation.

7. The photonic crystal of claim 6, wherein at least one of said materials are transparent in the microwave regime.

8. The photonic crystal of claim 1, wherein at least one of said materials comprises starch, cellulose, polyactic acid polymethyl methacrylate, polyacrylic acid or carbohydrates.

9. The photonic crystal of claim 1, wherein at least one of said materials comprises titania.

10. The photonic crystal of claim 1, wherein said titania has a degree of transparency at a defined frequency range of operation.

11. The photonic crystal of claim 1, wherein said structure is highly reflective for a defined frequency range of operation.

12. The photonic crystal of claim 1, wherein at least one of said materials are absorbing within a defined frequency range of operation.

13. The photonic crystal of claim 1, wherein said structure comprises a coating.

14. The photonic crystal of claim 1, wherein said structure selectively reflects desired frequency ranges in at least one direction.

15. A biocompatible structure comprising a plurality of biocompatible materials that are arranged to define a photonic crystal.

16. A biocompatible coating comprising a photonic crystal structure having a plurality of biocompatible materials.

17. A biocompatible reflector comprising a photonic crystal structure having a plurality of biocompatible materials.

18. A biocompatible heat shield comprising a photonic crystal structure having a plurality of biocompatible materials.

19. A biocompatible UV protection layer comprising a photonic crystal structure having a plurality of biocompatible materials.

20. A radiative heat barrier comprising a biocompatible photonic crystal structure having a plurality of biocompatible materials.

21. A piece of candy comprising a photonic structure having a plurality of biocompatible materials.

22. A method of coating a substrate comprising:

providing a biocompatible photonic crystal structure having a plurality of biocompatible materials;

dispersing said structure in a carrier fluid; and

applying said dispersed structure on said substrate.

23. A method of coloring food comprising integrating a biocompatible photonic crystal structure having a plurality of biocompatible materials within said food item, said photonic crystal structure being configured to reflect a predetermined color.

24. The method of claim 23, wherein said step of integrating comprises coating said food item with said biocompatible photonic crystal structure.

25. The method of claim 23, wherein said food item comprises candy.